

REMARKS/ARGUMENTS

Favorable reconsideration of this application, in light of the present amendments and following discussion, is respectfully requested.

Claims 1-7 and 19-26 are pending. Claims 1-4 are amended. Claims 5-7 are withdrawn. Claims 8-18 are canceled without prejudice or disclaimer. Claims 19-26 are newly added. Support for the amendment to Claim 1 can be found in numbered paragraphs [0096]-[0097] of the published application and in Fig. 14, for example. Support for the amendments to Claims 2-4 is self-evident. Support for newly added Claims 19-21 can be found in numbered paragraphs [0082]-[0083], for example. Support for newly added Claim 22 can be found in numbered paragraphs [0087]-[0088], for example. Support for newly added Claims 23-26 can be found in Fig. 14, for example. Support for newly added Claim 26 can be found in numbered paragraph [0140] and in Fig. 23, for example. The Title is amended in accordance with the language suggested in the outstanding Office Action. No new matter is added.

In the outstanding Office Action, the Election Requirement dated October 27, 2006, was made Final. The Title was objected to as not descriptive. Claims 2-4 were objected to for minor informalities. Claims 1-4 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite. Claims 1 and 2 were rejected under 35 U.S.C. § 103(a) as obvious over Pattanaik (U.S. Patent No. 5,828,031, herein “Pattanaik”) in view of JP '889 (Japanese Patent Pub. JP 5-226889, herein “JP '889”). Claims 3 and 4 were rejected under 35 U.S.C. § 103(a) as obvious over Pattanaik, JP '889, and JP '188 (Japanese Patent Pub. JP 2-246188, herein “JP '188”).

Regarding the objection to Claims 2-4 for minor informalities, Claims 2-4 are amended to incorporate language clarifying the objects irradiated by the laser beams.

Accordingly, Applicants respectfully submits that the objections to Claims 2-4 are overcome for at least the reasons discussed above.

Regarding the rejection of Claims 1-4 as indefinite, amended independent Claim 1 recites a first laser beam and second laser beam. Thus, Applicant respectfully submits that the rejection of Claims 1-4 as indefinite is overcome.

Regarding the rejection of Claims 1 and 2 as obvious over Pattanaik and JP '889, that rejection is respectfully traversed by the present response.

Amended independent Claim 1 recites:

A manufacturing method of a magnetic head device, comprising:

preheating by irradiating, with a first laser beam, terminal pads of a magnetic head slider and connection pads of a lead conductor member that is to be electrically connected to the magnetic head slider;

supplying conductive metal material for connecting said terminal pads and said connection pads during or after said preheating;

heating so as to form molten-metal connections between said terminal pads and said connection pads by irradiating, with a second laser beam, said conductive metal material; and

annealing the conductive metal material with a third laser beam after heating the conductive metal material such that laser energy applied during annealing gradually decreases.

Accordingly, the method includes preheating with a first laser beam, supplying a conductive metal material, heating the conductive metal material with a second laser beam so as to form molten-metal connections between terminal pads and connections pads, and annealing the conductive metal material with a third laser after heating. The laser energy applied during annealing gradually decreases.

In contrast, Pattanaik fails to teach or suggest annealing anything, much less annealing conductive metal material with a laser after heating the conductive metal material such that laser energy applied during the annealing gradually decreases.

JP '889 fails to remedy the deficiencies discussed above regarding Pattanaik. Rather, as described in the "constitution" section of JP '889, a laser beam is irradiated to preheat an electrode part of an electronic part (40). Afterward, irradiation of the electronic part (40) is performed to solder the electronic part (40) to the substrate (41). However, no annealing is performed anywhere in JP '889, nor does JP '889 teach or suggest that a person of ordinary skill in the art would be motivated to anneal the soldered connection provided by irradiating the electronic part (40). Accordingly, Applicant respectfully submits that amended independent Claim 1 patentably distinguishes over any reasonable combination of Pattanaik and JP '889 for at least the reasons discussed above.

Regarding the rejection of Claims 3 and 4 as obvious over Pattanaik, JP '889, and JP '188, that rejection is respectfully traversed by the present response.

Claims 3 and 4 depend from amended independent Claim 1 and patentably distinguish over Pattanaik and JP '889 for at least the same reasons as amended independent Claim 1 does.

JP '188 fails to remedy the deficiencies discussed above regarding Pattanaik and JP '889. JP '889 relates to bonding a covered wire material by using a laser energized at a low level to remove a coating of the wire and then using a laser energized at a high level to melt the wire material. JP '188 is devoid of any teaching or suggestion regarding annealing, much less annealing a conductive material such that laser energy applied during annealing gradually decreases as recited in amended independent Claim 1. Accordingly, Applicant respectfully submits that Claims 3 and 4 depending from amended independent Claim 1 patentably distinguish over any reasonable combination of the cited references for at least the reasons discussed above.

Applicant wishes to make the following additional comments regarding dependent Claim 4. The outstanding Office Action asserts that preheating and controlling irradiation

energy such that a temperature of a magnetic head element of the magnetic head slider becomes 150°C or less is a matter of design choice.¹ The outstanding Office Action further asserts that the present application does not disclose that the claimed temperature range for the magnetic head slider solves any stated problem or is for any particular purpose.² However, Applicant respectfully submits that the recited temperature range provides a specific benefit in that it prevents thermal damage to the magnetic head element and slider body (13a).

Additionally, the temperature is sufficient to secure solder wettability for the terminal and connection pads. For example, the specification states:

First, the preheating process is executed by irradiating the laser beam to the pairs of pads so that the temperature of the magnetic head element rises to an adequate temperature. This adequate temperature is determined to 150°C or less in order to give no thermal damage to the magnetic head element and the slider body 13a, but to a temperature capable of securing solder wettability for the pads. A time period of the preheating process varies depending upon irradiation energy and a frequency of the laser beam.³

Thus, the temperature range recited in dependent Claim 4 provides a specific benefit, and this benefit is described in the specification. Therefore, the range recited in dependent Claim 4 is not merely a matter of design choice as asserted in the outstanding Office Action, and Applicant respectfully submits that the range recited in dependent Claim 4 must be given patentable weight. Accordingly, dependent Claim 4 patentably distinguishes over any reasonable combination of the cited references as none of these references teach or suggest the claimed range.

Newly added Claims 19-26 recite additional features set forth in the original specification which further patentably distinguish over any reasonable combination of the

¹ Outstanding Office Action, page 5.

² *Id.*

³ Published specification, numbered paragraph [0094].

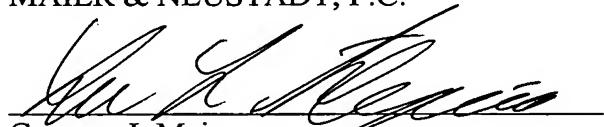
cited references. Additionally, Claims 19-26 depend from amended independent Claim 1 and patentably distinguish over any reasonable combination of the cited references for at least the same reasons as amended independent Claim 1 does.

Applicants note that no English translation of JP '889 or JP '188 has been provided in the outstanding Office Action. MPEP § 706.02 II makes clear that if a rejection is based on English Abstract of a foreign language reference, a full English translation of the reference shall be supplied to the Applicants in the next Office Action. Additionally, **any Final rejection may not rely on the Abstract of a foreign language reference unless the Applicants are provided with a full English translation of the foreign language reference.**

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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